

2013 7<sup>th</sup> Grade Math Contest

1. A coach spent \$201 on baseball bats and gloves. Let  $b$  represent the number of bats and  $g$  represent the number of gloves. Which expression represents the number of items she bought?

  - A.  $b + g$
  - B.  $b \times g$
  - C.  $2b + 3g$
  - D.  $3b + 2g$
  - E.  $2g \times b$
2. A recipe for party mix calls for  $4\frac{3}{4}$  cups of cereal. The amount of peanuts needed is  $1\frac{2}{3}$  cups less than the amount of cereal needed. How many cups of peanuts and cereal combined are needed?

  - A.  $3\frac{1}{12}$  cups
  - B.  $6\frac{1}{2}$  cups
  - C.  $7\frac{5}{6}$  cups
  - D.  $8\frac{1}{2}$  cups
  - E.  $5\frac{5}{7}$  cups
3. Brett has  $\frac{5}{6}$  of his weekly allowance left to spend. He has budgeted  $\frac{1}{8}$  of his weekly allowance to save for a new video game. What portion of his weekly allowance will he have left after putting the savings away?

  - A.  $\frac{4}{7}$
  - B.  $\frac{3}{8}$
  - C.  $\frac{7}{12}$
  - D.  $\frac{17}{24}$
  - E.  $\frac{2}{3}$

4. Which of the following fractions is closest to 0 on a number line?

A.  $-\frac{3}{4}$

B.  $-\frac{2}{3}$

C.  $\frac{7}{12}$

D.  $\frac{5}{8}$

E.  $\frac{1}{3}$

5. Josh is choosing from two prize bags that each contain 5 packs of baseball cards, 11 packages of putty, and 9 hats. What is the probability that Josh randomly picks a hat from the first bag and a pack of baseball cards from the second bag?

A.  $\frac{9}{25}$

B.  $\frac{14}{25}$

C.  $\frac{1}{2}$

D.  $\frac{9}{125}$

E.  $\frac{1}{5}$

6. Douglas paid \$21 for a pair of jeans at the mall. They were on sale for 20% off. What was the original price before the discount?

A. \$32.50

B. \$29.75

C. \$23.00

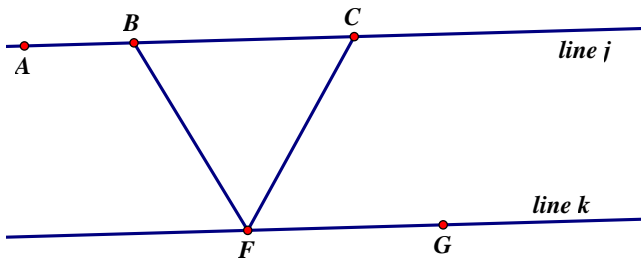
D. \$26.25

E. \$105.00

7. Sierra has 11.5 yards of fabric. She will use 20% of the fabric to make a flag. How many yards of fabric will she use?

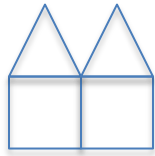
- A. 8.6 yd
- B. 4.5 yd
- C. 9.2 yd
- D. 6.8 yd
- E. 2.3 yd

8. Line  $j$  and line  $k$  below are parallel. The measure of angle  $ABF$  is  $120^\circ$ . The measure of angle  $BFC$  is  $61^\circ$ . Find the measure of angle  $CFG$ .

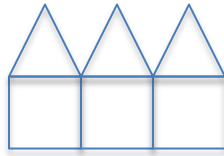


- A.  $59^\circ$
- B.  $120^\circ$
- C.  $61^\circ$
- D.  $119^\circ$
- E.  $29^\circ$

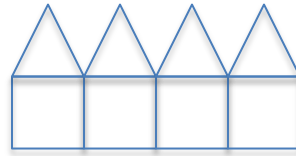
9. Mary's garden contains 108 flowers that are lilies, daisies, or sunflowers. There are half as many lilies as there are daisies. There are one third as many daisies as there are sunflowers. How many daisies are in the garden?
- A. 9
  - B. 27
  - C. 45
  - D. 24
  - E. 16
10. The surface area of a certain cube is 1536 square centimeters. What is the volume of that same cube?
- A.  $65,536 \text{ cm}^3$
  - B.  $4096 \text{ cm}^2$
  - C.  $36 \text{ cm}^2$
  - D.  $256 \text{ cm}^3$
  - E.  $4096 \text{ cm}^3$
11. Sam is making a bowl of crunch and munch for a super bowl party. To make his version of crunch and munch, he puts 4 parts of Cheesy Bits with 3 parts of Peanut Blobs with 5 parts of Popcorn. He has an unlimited supply of Cheesy Bits and Popcorn, but can only get 4 cups of Peanut Blobs. What is the maximum amount of crunch and munch Sam can make?
- A. 12 cups
  - B. 13 cups
  - C. 14 cups
  - D. 15 cups
  - E. 16 cups
12. Which of the following statements is always true of positive real numbers?
- A. The square root of a number is smaller than the number.
  - B. The reciprocal of a number is smaller than the number.
  - C. The square of a number is larger than the number.
  - D. Three fourths of a number is smaller than the number.
  - E. All of the statements above are always true.



Picture 1



Picture 2



Picture 3

13. Above are 3 pictures in a sequence of pictures. Picture 1 uses 11 toothpicks. I wish to continue to build the pictures in the sequence using toothpicks. How many toothpicks will be used in Picture 100?

- A. 495
- B. 501
- C. 506
- D. 511
- E. 522

14. The quantities represented by the variables A and B are directly proportional. When the value of A is increased by 4, the value of B is increased by 5. What is the value of B when the value of A is 15?

- A.  $3\frac{1}{5}$
- B. 12
- C.  $16\frac{1}{4}$
- D.  $18\frac{1}{4}$
- E.  $18\frac{3}{4}$

15. Dominic is making triangles with different lengths of plastic tubing. Which of the following sets of 3 lengths would not form a triangle?

- A. 19in, 20in, 40in
- B. 3ft, 4ft, 5ft
- C. 11.5cm, 13cm, 20cm
- D. 5ft, 8ft, 12ft
- E. Any 3 lengths of tubing will form a triangle.

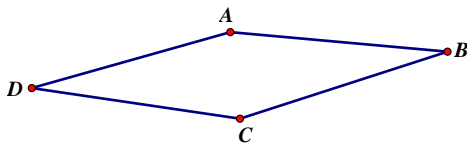
16. Zippy and Speedster are in a 20 mile race. When the clock strikes 10 a.m., Zippy is at the 10 mile marker (has run 10 miles) and Speedster is at the 8 mile marker (has run 8 miles). From this point in time on, Zippy runs at a constant speed of 4 miles per hour and Speedster runs at a constant speed of 5 miles per hour. Who crosses the finish line first and at what time?

- A. Zippy crosses first at 12:40
- B. Speedster crosses first at 12:40
- C. Zippy crosses first at 12:24
- D. Speedster crosses first at 12:24
- E. Zippy crosses first at 12:20

17. A tub fills at the rate of 5 gallons per minute. 4 minutes after the water is turned on, the drain plug is pulled out and the water drains at the rate of 3 gallons a minute. How long will it take for the tub to fully empty?

- A. It will not empty.
- B. 6 minutes
- C. 6 minutes and 40 seconds
- D. 2 minutes and 24 seconds
- E. 1 minute and 20 seconds

18. Quadrilateral ABCD is a rhombus. The measure of angle ABC is  $23^\circ$ . What is the measure of angle BCD?



- A.  $23^\circ$
- B.  $67^\circ$
- C.  $157^\circ$
- D.  $315^\circ$
- E.  $147^\circ$

19. A car got 33 miles per gallon using gasoline that cost \$2.95 per gallon. Approximately what was the cost, in dollars, of the gasoline used in driving the car 350 miles?

- A. \$10
- B. \$20
- C. \$30
- D. \$40
- E. \$50

20. A certain jar contains 60 jelly beans — 22 white, 18 green, 11 yellow, 5 red and 4 purple. If a jelly bean is to be chosen at random, what is the probability that the jelly bean will be neither red nor purple?
- A. 0.09
  - B. 0.15
  - C. 0.54
  - D. 0.85
  - E. 0.91
21. Which of the following numbers is farthest from the number 1 on the number line?
- A.  $-8/31$
  - B.  $-81/5$
  - C. 0
  - D. 5
  - E.  $81/5$

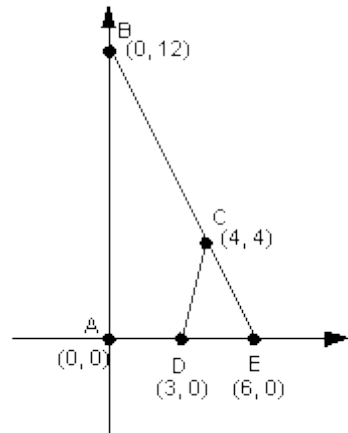
**ANNUAL PERCENT CHANGE IN DOLLAR AMOUNT OF SALES  
AT FIVE RETAIL STORES FROM 2010 TO 2012**

Store	Percent Change from 2010 to 2011	Percent Change from 2011 to 2012
P	10	-10
Q	-20	9
R	5	12
S	-7	-15
T	17	-8

22. If the dollar amount of sales at Store P was \$800,000 for 2010, what was the dollar amount of sales at that store for 2012?
- A. \$727,200
  - B. \$792,000
  - C. \$800,000
  - D. \$880,000
  - E. \$968,000

23. If 25 students in one class had an average of 93% and 20 students from another class had an average of 98%, approximately what is the average in percent of all 45 students?
- A. 94
  - B. 97
  - C. 95.5
  - D. 95.2
  - E. 93
24. A right rectangular prism has a length of  $1\frac{3}{4}$  inches, a width of 2 inches, and a height of  $3\frac{1}{4}$  inches. How many cubes with a side length of  $\frac{1}{4}$  of an inch would fit in the prism?
- A. 7
  - B.  $11\frac{3}{8}$
  - C. 728
  - D. 846
  - E. 56
25. What is the area of a circle that is inscribed in a square whose area is 81 square inches?
- A.  $81\pi$  square inches
  - B.  $18\pi$  square inches
  - C.  $9\pi$  square inches
  - D.  $20.25\pi$  square inches
  - E.  $40.5\pi$  square inches
26. Being a conscientious driver, Suzy stayed at or below the speed limit while traveling down the interstate. Overall, she went an average rate of 65 mph and it took her 10 hours to complete her journey. If she traveled for 6 of her 10 hours at 70 mph, what constant speed did she go for the remaining 4 hours to obtain the overall 65 mph average?
- A. 65mph
  - B. 60 mph
  - C. 57.5 mph
  - D. 59.5 mph
  - E. 62.5 mph





27. Find the area of the graph above enclosed by quadrilateral ABCD.

- A.  $36 u^2$
- B.  $30 u^2$
- C.  $42 u^2$
- D.  $72 u^2$
- E.  $84 u^2$

28. If account codes for a certain company are assigned as follows: two letters and then three one digit numbers, how many different account codes can be made? Assume that letters and digits cannot be repeated.

- A. 1,757,600
- B. 676,000
- C. 260
- D. 468,000
- E. 18,720

29. If Maggie randomly chooses a point in the square below, what is the probability that the point she chooses will not be in the circle?



- A.  $\frac{1}{4}$
- B.  $\frac{2-\pi}{4}$
- C.  $\frac{4-\pi}{4}$
- D.  $\frac{\pi}{3}$
- E. There is not enough information to tell

30. Which of the following is closest to the volume of a textbook?

- A. 2730 cubic centimeters
- B. 2 cubic feet
- C. 12 cubic decimeters
- D. 500 cubic millimeters
- E. .5 cubic meters